

12th ANNUAL



NIH GRADUATE STUDENT RESEARCH SYMPOSIUM

THE FACES OF TOMORROW'S SCIENCE

JANUARY 12, 2016

NIH NATCHER CONFERENCE CENTER, BETHESDA, MARYLAND



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2016

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Graduate Partnerships Program
Office of Intramural Training & Education
Office of Intramural Research
National Institutes of Health
US. Department of Health & Human Services

FOREWORD

Every year, the NIH Graduate Student Research Symposium highlights the excellence of scientific research conducted by graduate students at the National Institutes of Health. Through the NIH Graduate Student Research Symposium, we are able to recognize the importance of scientific communication within the community as a critical aspect of success in scientific careers. Here, we are also able to share our research, appreciate that of our colleagues, and applaud the incredible diversity of science occurring in our community.

This marks the twelfth year of our annual symposium—a symposium created to recognize us, the graduate students, as the faces of tomorrow’s science. We gather from across the institutes at the NIH and universities around the world to celebrate this tradition. From those embarking on their thesis proposals to seasoned doctoral candidates, we take this day to acknowledge our progress at the NIH and glimpse the scientific investigators of tomorrow. To start the day, alumni of the NIH Graduate Partnership Programs (GPP) will congregate with us in the lower lobby for a relaxed networking event. Then Dr. Sharon Milgram, Director of the Office of Intramural Training and Education (OITE), will make welcoming remarks followed by four current students, who will present their scientific research conducted at the NIH. At mid-day, two consecutive poster sessions will feature the wealth of graduate research on campus, with over one hundred GPP students registered to present scientific posters. NIH staff scientists and postdoctoral fellows will oversee judging of the graduate student posters. For the highest rated posters in each category, presenters will receive the prestigious NIH Graduate Student Research Award generously funded by the OITE.

Following the poster sessions, we are pleased to welcome Dr. Pauline Rose Clance to deliver the keynote address. Dr. Clance is known for establishing the term Impostor Phenomenon. With Dr. Suzanne Imes at Georgia State University, Dr. Clance co-authored an initial report describing the Impostor Phenomenon in high achieving women – an article that has now been cited over 450 times. The Impostor Phenomenon reflects an individual’s emotional and psychological state as it relates to their level of achievement. Examples include feeling fraudulent, ill equipped, and unworthy of their achievements despite their earned platform or accolades. These negative thoughts and emotions can lead to high anxiety and stress levels that can interfere with one reaching their full potential related to performance, achievement, and success. Although Dr. Clance first observed Impostorism in high achieving women, it is important to note that data suggests this phenomenon transcends across genders, cultures, age, academic concentration, and occupations. Furthermore, the lifetime prevalence rate of experiencing one episode of the Impostor Phenomenon is projected at 70%. Dr. Clance has also written an award-winning book on the Impostor Phenomenon – *The Impostor Phenomenon: Overcoming the Fear that Haunts Your Success* – and she has been invited to speak at radio, television, and international lectures on the subject. Dr. Clance has now been in private practice of clinical psychology for over thirty-three years, and while at Georgia State University, she served as the first Senior Faculty Associate for the Advancement of Women in the Office of the Provost where she developed mentoring and leadership programs for female staff members. We are honored to host Dr. Clance as a keynote speaker, and we are eager to receive her knowledge and guidance related to our experiences with the Impostor Phenomenon at this critical junction in our academic and professional careers.

Our success as graduate students hinges on the quality of our mentors. We are grateful for the rich mentorship provided at the NIH through many distinguished faculty. For this reason, three outstanding NIH mentors, nominated by their students, will be recognized with a brief presentation and awarded for their dedication to graduate training. To end the day, a ceremony will be held for students who have recently defended their dissertations. Dr. Sharon Milgram will present certificates of graduation to celebrate their achievements.

The 12th annual NIH Graduate Student Research Symposium provides a unique opportunity for graduate students to share their work with their peers, learn from their mentors, and establish long-standing connections in the NIH community. We thank all students and staff who have made this event what it is, and we eagerly anticipate continuing this NIH graduate student tradition in years to come.

ACKNOWLEDGEMENTS

We are grateful for the opportunity to convene here in recognition of graduate student achievements at the NIH. This symposium would not be possible without the support and guidance that the graduate student community receives from the Training and Scientific Directors of the NIH Institutes and Centers, the GPP Directors, and the Graduate Student Council (GSC). We thank Dr. Virginia Meyer and Dr. Gail Seabold for organizing the symposium poster session, and we acknowledge the selfless contribution from the postdoctoral fellow and staff scientist poster judges. We thank the current 2015 GSC co-chairs, Alec Nickolls and Kara Fulton, for managing the Outstanding Mentor Awards. We are especially thankful for ceaseless support from the Office of Intramural Training and Education (OITE). Dr. Sharon Milgram, Dr. Philip Wang, Dr. Phil Ryan and other OITE staff have contributed significantly to planning this event, and we are grateful for their leadership. We also thank Dr. Pauline Rose Clance for accepting our invitation as keynote speaker and making time to travel to the NIH. Finally, we thank the graduate students, their mentors, alumni, and all attendees whose presence makes this a special event.

THE 12TH ANNUAL NIH GRADUATE RESEARCH SYMPOSIUM COMMITTEE

Allyson Byrd, NHGRI/Boston University

Angel de la Cruz Landrau, NINDS/Universidad Central del Caribe

Valeria Martinez-Kaigi, NIMH/University of North Texas

Alec Nickolls, NINDS/Brown University

Benjamin Suarez-Jimenez, NIMH/University College London

PROGRAM OF EVENTS

9:00 am-10:00 am Lower Lobby	ALUMNI NETWORKING Network with Graduate Partnerships Program (GPP) alumni. All are invited to attend.
10:00 am-10:15 am Room E1/E2	WELCOME Sharon L. Milgram, PhD Director, NIH Office of Intramural Training & Education (OITE)
10:15 am-11:45 am Room E1/E2	STUDENT ORAL PRESENTATIONS Shahriar Sheikbahaie, University College London, NINDS <i>Control of Respiratory Circuits by Brainstem Astrocytes</i> Helen T. Michael, University of Maryland, College Park, NCI <i>Shining a Light on the Role of UV in the Initiation and Progression of Melanocytic Lesions</i> Dezmond C. Taylor-Douglas, Howard University, NICHD <i>Human MC3R C17A+G241A Knock-In Mice Have a Unique Inflammatory Profile</i> Jessica B. Hostetler, University of Cambridge, NIAID <i>Strand-specific RNA Sequencing of Plasmodium vivax Clinical Isolate</i>
11:45 am-12:45 pm Atrium	POSTER SESSION I Odd numbered posters presenting
12:45 pm-1:45 pm Atrium	POSTER SESSION II Even numbered posters presenting
2:00 pm-3:00 pm Ruth L. Kirschstein Auditorium	KEYNOTE ADDRESS Pauline Rose Clance, PhD, Board Certified Clinical Psychologist <i>Author – The Imposter Phenomenon: Overcoming the Fear that Haunts Your Success</i>
3:00 pm-4:00 pm Ruth L. Kirschstein Auditorium	AWARDS CEREMONY Graduation Ceremony Certificates presented by: Sharon L. Milgram, PhD, Director, NIH Office of Intramural Training & Education Outstanding Mentor Awards Karen Faith Berman, MD Kareem A. Zaghloul, MD, PhD NIH Graduate Student Research Awards (NGSRAs)

GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Afrouz Anderson Application of Functional Near Infrared Spectroscopy in Neurodevelopmental Disorders	NICHHD Dr. Amir H. Gandjbakhche	University of California Davis Dr. Dennis L. Matthews
Joseph Arizpe Eye-movement Studies of Visual Face Perception	NIMH Dr. Chris Baker	University College London Dr. Vincent Walsh
Michael Askenase Functional Education of Monocytes During Infection	NIAID Dr. Yasmine Belkaid	University of Pennsylvania
Ruilang Bai Quantitative Study of Water Dynamics in Biomimetic Models and Living Tissue by NMR and MRI: Perspectives on Direct Detection of Neuronal Activity	NICHHD Dr. Peter J. Basser	University of Maryland, College Park Dr. Robert M. Briber
Michael Bemben A Tale of Two C-Tails	NINDS Dr. Katherine W. Roche	Johns Hopkins University
Dominik Bogen Introducing a Novel Treatment Approach and Deciphering Tumor Heterogeneity in MYCN-Amplified Neuroblastoma	NCI-CCR Dr. Javed Khan	Medical University of Vienna, Vienna, Austria Dr. Peter F. Ambros
Laura Bott Spinal and Bulbar Muscular Atrophy: New Insights into the Disease Mechanism and Prospects for Pharmacological Therapy	NINDS Dr. Kenneth Fischbeck	Karolinska Institutet Dr. Nico Dantuma
Lani Chun D1 and D2 Dopamine Receptor Biased and Heteromeric Signaling: Implications for Protein Conformational Fluidity	NINDS Dr. David Sibley	Johns Hopkins University
Anne Davis Improving Experimental Models for the Study of Human Influenza A Pathogenesis	NIAID Dr. Jeffery K. Taubenberger	North Carolina State University Dr. J. Mac Law
Richard Gieseck Elucidating Mechanisms of Hepatic Fibrosis using Murine Models and Human Induced Pluripotent Stem Cells	NIAID Dr. Thomas Wynn	University of Cambridge Prof. Ludovic Vallier
Xue Jiao Mutations in SOHLH1/2 Genes are Associated with Human Premature Ovarian Failure	NIDCR Dr. Wanjun Chen	Shandong University Dr. Zi-jiang Chen
Adam Jones Longitudinal Single-Unit Recording in the Macaque Face Patch System: Identity and Plasticity in the Anterior Fundus Face Patch	NIMH Dr. David A. Leopold	University of Maryland, College Park Dr. Daniel A. Butts
Maria Kaltcheva Investigation of the Role of Interdigit BMP Signaling in Programmed Cell Death and Mouse Limb Development	NCI-CCR Dr. Mark Lewandoski	Johns Hopkins University

GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Scott Kelly Temporal Trends and Risk Factors for Aggressive and Fatal Prostate Cancer	NCI-DCEG Dr. Michael B. Cook	George Washington University Dr. Sean D. Cleary
Amit Kumar Understanding Physiology of Diseases and Cell Lines Using Omics Based Approaches	NIDDK Dr. Joseph Shiloach	Johns Hopkins University Dr. Michael J Betenbaugh
Catherine Lerro Understanding the Role of Pesticide Use in Carcinogenesis: An Examination of Occupational and Non-Occupational Exposures	NCI-DCEG Dr. Laura Beane Freeman	Yale University Dr. Yawei Zhang
Yangtengyu Liu Generation of Non-human Primate Induced Pluripotent Stem Cell-derived Endothelial Cells and Autologous Transplantation	NHLBI Dr. Manfred Boehm	Central South University Dr. Xiaoxia Zuo
Rachel Lokanga Somatic Expansion of Premutation Alleles and the Role of the Mismatch Repair and Base Excision Repair Proteins on Repeat Expansion in a Mouse Model of the Fragile X-Related Disorders	NIDDK Dr. Karen Usdin	University of Cape Town Dr. Mohamed Iqbal Parker
Adrienne Long 4-1BB Costimulation Ameliorates T Cell Exhaustion Induced by Antigen Independent Signaling of Chimeric Antigen Receptors	NCI-CCR Dr. Crystal Mackall	Northwestern University
Sajda Sonia Majri Regulation of CD4+ Memory T Cell Homeostasis by STAT5 during TCR restimulation	NIAID Dr. Michael Lenardo	Universite Paris-Diderot
Amina Metidji Type I Interferons and T Regulatory Cells: Effects on Development, Homeostasis and Function	NIAID Dr. Ethan Shevach	Pierre and Marie Curie University
Ian Moore Severity of Clinical Disease and Pathology in Ferrets Experimentally Infected with Influenza Viruses is Influenced by Age and Inoculum Volume	NIAID Dr. Kanta Subbarao	Michigan State University Dr. Kurt Williams
Kaitlyn Morabito Intranasal Vaccination with Murine Cyotomegalovirus Expressing Respiratory Syncytial Virus Antigens Promotes Tissue-Resident Memory CD8+ T cells	NIAID Dr. Barney S. Graham	Georgetown University
Muktha Natrajan Retinoid X Receptor Activation Reverses Age-related Deficiencies in Myelin Debris Phagocytosis and CNS Remyelination	NINDS Dr. Bibiana Bielekova	University of Cambridge Prof. Robin J.M. Franklin

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Aaron Neal Identifying Genetic Determinants of Impaired PfEMP1 Export in <i>Plasmodium falciparum</i> -Infected Erythrocytes	NIAID Dr. Rick Fairhurst	University of Oxford Dr. Chris Newbold
Catherine Nezich Insights into Parkin-Mediated Mitochondrial Quality Control and its Role in Biased Segregation of Pathological Mitochondrial DNA Mutations	NINDS Dr. Richard Youle	University of Cambridge Dr. Ian Holt
Samelia Pyuzza The Role of Planar Cell Polarity Protein, Prickle 2, in the Mammalian Retina	NEI Dr. Tiansen Li	Howard University
Atteeq Rehman Understanding the Mechanism of Hearing Through Genetic Approach	NIDCD Dr. Thomas B. Friedman	University of the Punjab Dr. Shaheen N. Khan
Arianne Catherine Richard Studies of Genetic Variation in the Tumour Necrosis Factor Cytokine And Receptor Superfamilies in Autoimmunity and Autoinflammation	NIAMS Dr. Richard Siegel	University of Cambridge Prof. Ken Smith
Marianita Santiana Host Cellular Cholesterol Distribution and Dynamics During Enteroviral Infection	NHLBI Dr. Nihal Altan-Bonnet	Rutgers, The State University of New Jersey
Martin Skarzynski Circumventing Antigen Loss to Potentiate Cancer Immunotherapy	NHLBI Dr. Adrian Wiestner	Georgetown University
Carolyn Smith The Interplay of Lipoproteins and Innate Immune Responses in Systemic Lupus Erythematosus and its Role in Premature Cardiovascular Disease.	NIAMS Dr. Mariana J. Kaplan	University of Michigan Dr. David A. Fox
Wesley Stepp The Role of Nuclear Domain 10 Proteins in the Human Papillomavirus Lifecycle	NIAID Dr. Alison A. McBride	Georgetown University
Shuang Tang Exploring Novel Functions of SIRT1 in Retinoic Acid Signaling and Stem Cell Biology	NIEHS Dr. Xiaoling Li	Shanghai Jiao Tong University Dr. Gang Huang
Kevin Tosh Cell Subsets and Pathogen Recognition Requirements Involved in the Innate Response of Primary Human Monocytes and Dendritic Cells to <i>Toxoplasma gondii</i>	NIAID Dr. Alan Sher	Georgetown University Dr. Steven Singer
Jose Troche Alcohol and Selected Health Outcomes	NCI-DCEG Dr. Christian C. Abnet	Yale University Dr. Susan T. Mayne

GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Coralie Violett Dissecting the Interactive Effects of Hypoxia and Kaposi Sarcoma-Associated Herpesvirus on microRNA and mRNA Transcriptomes	NCI-CCR Dr. Robert Yarchoan	University of Oxford Dr. Jiannis Ragoussis Prof. Francesco Pezzella
Bradley Webster GCN5L1 Functions as a Mitochondrial Acetyltransferase that Regulates Mitophagy	NHLBI Dr. Michael Sack MD/PhD	University of New Mexico Dr. Nancy Kanagy
Jason Wendler Accessing Complex Genomic Variation in <i>Plasmodium falciparum</i> Natural Infections	NIAID Dr. Patrick Duffy	University of Oxford
Tingting Yan Glycyrrhizin Protects against Acetaminophen-induced Acute Liver Injury via Alleviating TNF α -induced Apoptosis	NCI-CCR Dr. Frank J. Gonzalez	China Pharmaceutical University
Hangyi Yan CCL9 Induced by TGF- β Signaling in Myeloid Cells Enhances Tumor Cell Survival in the Premetastatic Lung	NCI-CCR Dr. Li Yang	Johns Hopkins University

KEYNOTE SPEAKER

**PAULINE ROSE CLANCE, PhD, ABPP***Clinical Psychologist**Professor Emerita of Psychology, Georgia State University*

Pauline Rose Clance, PhD, ABPP is a Board Certified Clinical Psychologist and Professor Emerita of Psychology at Georgia State University (GSU) in Atlanta, Georgia where she taught in the Doctoral Clinical Psychology Program and supervised psychotherapy for 28 years. In 2012, she also received an Honorary Doctorate in Science from Lynchburg College in Virginia.

Her research and publications have focused on: the impostor phenomenon, the development of human potential and actualization, body image, gender and multicultural issues, Gestalt, existentialist and feminist therapy, women and barriers to success, psychotherapy process and outcome, and emotional intelligence and interpersonal competence. She served as the first Senior Faculty Associate for the Advancement of Women in the Office of the Provost at GSU where she developed mentoring and leadership programs for women faculty and staff at the senior administrative level.

Dr. Pauline Rose Clance is best known for her 1985 authorship of the book, *The Impostor Phenomenon: Overcoming the Fear that Haunts Your Success*, for which she received Georgia Author of the Year Award by the Dixie Council of Authors & Journalists. Dr. Clance and Dr. Suzanne Imes coined the term *The Impostor Phenomenon* and co-authored a founding article in 1978 which has led to world-wide research and media interest in the topic. Dr. Clance has appeared on radio, webcasts, and television, including *The Today Show*, *Nightline*, *Donahue*, and *CNN* discussing her work. The topic has been featured in several magazines and newspapers including *The New York Times*, *Self*, *Shape*, *Time Magazine*, *People*, and *The Harvard Business Review*. She has presented her Impostor Phenomenon work at regional and national professional academic organizations such as the American Council on Education, American Association of University Women, the Office of Women in Higher Education, and also previously here at the NIH.

Many studies on the Impostor Phenomenon have been conducted worldwide, in countries including Holland, Korea, China, Sweden, Iran, India, Egypt, Australia, Canada, and the UK. The *Clance Impostor Phenomenon Scale* has been translated for use in several countries, including Japan, Poland, Denmark, and Pakistan. The original book has been translated into Russian, German, French, and Norwegian.

Dr. Clance has been in private practice in clinical psychology for over 33 years and is a Diplomat of the American Board of Professional Psychology. She was a co-founder and a faculty member of the Gestalt Institute of Georgia, a faculty member of Pine River Psychotherapy Training Institute, and has served on several professional editorial boards. She is a member of various professional organizations including the American Psychological Association, American Academy of Psychotherapists, and the Georgia Psychological Association. She is a national and international lecturer and served as President of the Southeast Psychological Association.

Since its conception over 35 years ago, Dr. Clance's original idea of the Impostor Phenomenon has become a focus of extensive interest and now elicits new academic research worldwide each year.

STUDENT SPEAKERS



JESSICA

JESSICA B. HOSTETLER, NIAID/NIH

Jessica earned a B.S. degree in Biology from Duke University in 2003. Her undergraduate research in the laboratories of Professors John Mercer and V. Louise Roth focused on molecular evolution. After graduating, she studied the genomics of infectious disease in the Genome Finishing and Analysis group at the J. Craig Venter Institute from 2003-2007. She managed the group from 2007-2011 before entering the National Institutes of Health Oxford-Cambridge Scholars doctoral program to pursue infectious disease research in greater depth. Under the supervision of Dr. Julian Rayner at the Wellcome Trust Sanger Institute (WTSI) and Dr. Rick Fairhurst in the Laboratory of Malaria and Vector Research within NIAID/NIH, Jessica studies *Plasmodium vivax* malaria. She is focused on understanding parasite invasion of red blood cells and the development of immunity to *P. vivax* using transcriptomics and the expression and study of a library of parasite surface proteins. She is grateful to her fantastic teams and mentors at the NIH and WTSI for their extensive knowledge and constant support.



HELEN

HELEN T. MICHAEL, NCI

Helen received a BA in Biology from Carleton College and a DVM from the University of Minnesota. Following residency training in veterinary Clinical Pathology, Helen entered the Comparative Biomedical Scientist Training Program in partnership with the University of Maryland to pursue a PhD and joined Glenn Merlino's laboratory in NCI. Her work studies the role of UV in the initiation of moles and progression to melanoma. She aims to uncover additional driver genes and mechanisms of progression that could aid in clinical diagnosis, prognosis, or treatment of patients with melanocytic lesions.

SHAHRIAR SHEIKBAHAEI, NINDS

Shahriar's interest in neuroscience stemmed from the usual combination of an aptitude for science and a medical problem (stuttering) that brought him into bioscience at a young age. Finishing medical school in Iran, Shahriar immigrated to the United States in 2005. Yet, the delays to get his credentials forced him to start over his education in the U.S., an experience that he described as, "opened my eyes to the beauty of neurobiological research." As an undergraduate student at University of California at Berkeley, he has acquired broad laboratory experience in molecular neurobiology (Robert Zucker lab, UC-Berkeley), developmental neurobiology (John Rubenstein lab, UC San Francisco), and computational biology (Anthony Hunt lab, UCSF). In 2012, Shahriar joined the NIH – University College London (UCL) Joint Doctoral Training Program in Neuroscience. Under the mentorship of Dr. Jeffrey Smith at NINDS and Prof. Alexander Gourine at UCL, he investigates the interactions of astrocytes and respiratory neuronal networks. Shahriar's thesis project focuses on how activities of rhythm-generating neural circuits within the brainstem respiratory network are controlled by astrocytic networks. Shahriar hopes that a greater understanding of the functional glial microenvironment in shaping the normal activity of CNS circuits will provide new insights in treatment of nervous system disease, including motor disorders and stuttering.



SHAHRIAR

DEZMOND C. TAYLOR-DOUGLAS, NICHD

Dezmond is a 4th year PhD candidate in the Graduate Partnerships Program with Howard University College of Medicine. He received his BS in Biology from Morehouse College. During his undergraduate studies, he worked in Gary Bassell's lab at Emory University identifying the interaction of the disease protein Survival of Motor Neuron (SMN) and the protective modifier T-plastin in Spinal Muscular Atrophy. This work along with exposure to different research topics during summer research experiences established his interest in neuroscience and physiology. Upon graduation from Morehouse, Dezmond started the MD, PhD program at Howard University and further cultivated his interest in metabolic disorders such as obesity. This interest led him to the GPP and the Laboratory of Jack Yanovski in NICHD to conduct his research. His work focuses on understanding the peripheral role of MC3R in the regulation of lipogenic and lipolytic processes. This work was performed using a unique humanized MC3R knock-in mouse model, and has led to exciting implications for the role of peripheral MC3R in lipid metabolic processes and inflammation. He is currently finishing his tenure as



DEZMOND

a graduate student in the Department of Physiology & Biophysics at Howard University College of Medicine, and is looking forward to continuing his career in research as a postdoctoral fellow. He is extremely thankful for the NICHD Developing Talent program, his advisor, lab mates, the faculty at Howard University, and the administration of the GPP for their unwavering encouragement and generous support.

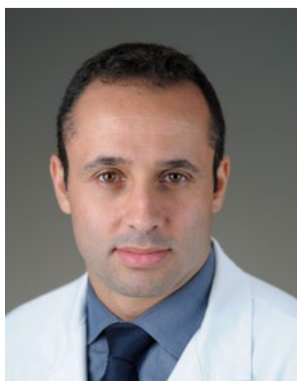
OUTSTANDING MENTOR AWARD RECIPIENTS



DR. BERMAN

KAREN FAITH BERMAN, MD

Dr. Berman is a Senior Investigator and Chief of the Clinical and Translational Neuroscience Branch, the Section on Integrative Neuroimaging, and the Psychosis and Cognitive Studies Section at the National Institutes of Health, NIMH Intramural Research Program. After receiving her BS degree at the University of Rochester and her MD degree at St. Louis University, she completed a medical internship at Washington University in St. Louis and had residency training in psychiatry at the University of California at San Diego. Dr. Berman also completed residency training in nuclear medicine at the NIH Warren G. Magnusen Clinical Center and is board certified in both psychiatry and nuclear medicine. She has received a number of awards, including the A.E. Bennett Award for Neuropsychiatric Research of the Society of Biological Psychiatry, the National Alliance for Research on Schizophrenia and Depression (NARSAD) Independent Investigator and Distinguished Investigator Awards, three NIH Bench to Bedside Awards, and the NIH Director's Award for her outstanding pioneering research. Dr. Berman's research group conducts translational investigations, using multimodal neuroimaging to bridge the gap between neurogenetic, molecular, cellular, and system-level mechanisms of brain dysfunction in neuropsychiatric disorders that have neurodevelopmental and genetic sources such as schizophrenia and Williams syndrome. They also study other conditions impacting cognition such as normal development and aging, as well as the effects of gonadal steroid hormones on brain function.



DR. ZAGHLOUL

KAREEM A. ZAGHLOUL, MD, PhD

Dr. Zaghloul received his BSc degree from MIT in 1995 and his MD and PhD degrees from the University of Pennsylvania in 2003. His graduate work focused on developing silicon models of visual processing in the mammalian retina with Dr. Kwabena Boahen. Dr. Zaghloul completed a residency in Neurological Surgery in 2010 from the University of Pennsylvania. During this time, he completed postdoctoral research with Dr. Michael Kahana, investigating the neural correlates of human memory encoding, decision, and reward. Dr. Zaghloul has completed clinical fellowships in Epilepsy Surgery and in DBS Surgery. Dr. Zaghloul joined NINDS as a Staff Clinician in 2010, and as an Investigator in 2013. His laboratory is focused on investigating the neural mechanisms underlying human cognitive function.

STUDENTS *Listed alphabetically by name*

Poster #	Last Name, First	IC	University
84	Agbaegbu, Chinyere	NHLBI	Georgetown University
96	Alkadi, Halah	NHGRI	Catholic University of America
80	Alsufyai, Amal	NEI	George Mason University
85	Bareille, Joseph	NICHD	Universite Paris Descartes
17	Bayfield, Oliver	NIAMS	University of York
26	Bayik, Defne	NCI	Bilkent University
71	Beedie, Shaunna	NCI	University of Aberdeen
48	Bing, So Jin	NEI	Jeju National University
10	Booth, Benjamin	NCI	University of Illinois at Chicago
65	Breglio, Andrew	NIDCD	University of Oxford
13	Bullock, Jeanee	NEI	Georgetown University
86	Burke, Dennis	NIAAA	Brown University
47	Burnett, Joey	NIDDK	Brown University
63	Burrell, Allison	NCI	George Washington University
4	Byrd, Allyson	NHGRI	Boston University
69	Campla, Christie	NEI	University of Oxford
97	Cheng, Xiu-Tang	NINDS	Shanghai Jiao Tong University
92	Coonahan, Erin	NIAID	University of Oxford
83	Cross, Joanna	NICHD	University of Oxford
28	De Mets, François	NCI	Université Libre de Bruxelles
58	Deasy, Sarah	NCI	George Washington University
76	Demmerle, Justin	NICHD	University of Oxford
78	Dennis, Allison	NICHD	Johns Hopkins University
11	DuChez, Brian	NIDCR	Georgetown University
2	Easton, Alice	NIAID	Imperial College London
36	Faldetta, Kimberly	NIAID	University of Oxford
59	Fallon, Rebecca	NIDA	Johns Hopkins University
67	Fox, Caitlin	NICHD	Johns Hopkins University
51	Fulton, Kara	NINDS	Brown University
66	Goswami, Meghali	NHLBI	George Washington University
40	Gough, Portia	NIAID	University of Chicago
29	Grodin, Erica	NIAAA	Brown University
55	Hargrove, Passley	NEI	George Washington University
52	He, Yong	NIAAA	Anhui Medical University
22	Hostetler, Jessica	NIAID	University of Cambridge

Poster #	Last Name, First	IC	University
24	Hyun, Seong-In	NIAID	University of Maryland, College Park
35	Ianni, Angela	NIMH	University of Oxford
81	Inwood, Sarah	NIDDK	Johns Hopkins University
32	Joy, Jaimy	NIA	Johns Hopkins University
46	Kapnick, Senta	NHGRI	Johns Hopkins University
62	Katz, Samuel	NIAID	University of Cambridge
16	Kelly, Scott	NCI	George Washington University
8	Kennard, Andrea	NIAID	Johns Hopkins University
61	Kesner, Andrew	NIDA	Johns Hopkins University
54	Kunze, Vincent	NEI	Carl von Ossietzky Universität Oldenburg
12	LaBarre, Brenna	NHGRI	Boston University
33	Lefevre, Jennifer	NINDS	University Pierre et Marie Curie
88	Levy, Emily	NHLBI	George Washington University
101	Liu, Yangtengyu	NHLBI	Central South University, China
79	Lokanga, Rachel	NIDDK	University of Cape Town
3	Lopata, Anna	NHLBI	University of Leeds
89	Lotspeich-Cole, Leda	NICHHD	Johns Hopkins University
72	Louis, Lydia	NCI	Rutgers, The State University of New Jersey
50	Lyu, Cancan	NEI	Sun Yat-sen University
75	Marler, Laura	NICHHD	Johns Hopkins University
31	Marquart, Gregory	NICHHD	University of Maryland, College Park
45	Martinez-Kaigi, Valeria	NIMH	University of North Texas
95	Michael, Helen	NCI	University of Maryland, College Park
15	Mirzaeimoghri, Mona	NHLBI	University of Maryland, College Park
25	Muessgens, Diana	NINDS	Karolinska Institutet
99	Naik, Swapna	NHLBI	University of Sunderland
23	Nickolls, Alec	NINDS	Brown University
19	Nobori, Takanobu	NIBIB	Kyushu University
102	Oh, Sumin	NIDDK	Dankook University
14	Park, Kyemyung	NIAID	University of Maryland, College Park
73	Patange, Simona	NCI	University of Maryland, College Park
87	Pellegrini, Laura	NIA	University College London
60	Phillips, Ryan	NINDS	University of New Hampshire
7	Pluchino, Kristen	NCI	University of Oxford
94	Raddi, Gianmarco	NIAID	University of Cambridge

Poster #	Last Name, First	IC	University
42	Reynolds, Sara	NIAID	University of Maryland, College Park
6	Risso, Davide	NIDCD	University of Bologna
1	Rolt, Adam	NIDDK	The University of Liverpool
90	Roosen, Dorien	NIA	University of Reading
44	Russo, Matthew	NINDS	Johns Hopkins University
64	Schiel, Matthew	NINDS	Brown University
98	Schneller, Jessica	NHGRI	State University of New York at Stony Brook
100	Sells, Joanna	NIAAA	Uniformed Services University of the Health Sciences
5	Shapiro, Jenna	NICHD	University of Cambridge
43	Sheikhabaei, Shahriar	NINDS	University College London
38	Shivaprasad, Nityashree	NCI	Georgetown University
56	Silverstein, Shana	NIAAA	University College London
49	Spurrier, Josh	NINDS	Johns Hopkins University
82	Starke, Carly Elizabeth	NIAID	Georgetown University
18	Stuart, Carey	NIAID	University of Maryland, College Park
37	Suarez-Jimenez, Benjamin	NIMH	University College London
57	Tarfa, Rahilla	NINDS	Brown University
77	Taylor-Douglas, Dezmond	NICHD	Howard University College of Medicine
68	Tisza, Michael	NCI	Johns Hopkins University
9	Venkatesh, Madhvi	NCI	University of Oxford
39	Wang, Huiqing	NINDS	Southern Medical University, China
74	Weaver, Kristen	NINR	New York University
53	Weidner, Lora	NIMH	Karolinska Institutet
30	Welles, Hugh	NIAID	George Washington University
91	Weston, Mary	NINDS	Johns Hopkins University
27	Whitaker, Dustin	NEI	Texas A&M University
93	Xin, Wendy	NIDA	Johns Hopkins University
41	Yaffe, Robert	NINDS	Johns Hopkins University
21	Yan, Tingting	NCI	China Pharmaceutical University
70	Yang, Qinglu	NINDS	Sun Yet-sen University
20	Yang, Yinmeng	NCI	Georgetown University
34	Yolitz, Jason	NIAID	Johns Hopkins University

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1

Chemical Optimization and *In vivo* Pharmacological Evaluation of Novel Inhibitors of Hepatitis C Virus

Adam Rolt, Shanshan He, Jingbo Xiao, Andrés Dulcey, Billy Lin, Zongyi Hu, Xin Hu, Amy Q. Wang, Xin Xu, Noel Southall, Marc Ferrer, Wei Zheng, T. Jake Liang, and Juan J. Marugan
Graduate Student Name: Adam Rolt

NIH Institute-Center: NIDDK

NIH Research Advisor: Dr. T. Jake Liang

University Research Advisor: Dr. Andrew Stachulski

Graduate University: The University of Liverpool

2

Multi-parallel qPCR Provides Increased Sensitivity and Diagnostic Breadth Compared to Kato Katz in a Field Evaluation of the Impact of a Deworming Program for Soil-transmitted Helminths (STH)

Alice V. Easton, Rita G. Oliveira, Elise M. O'Connell, Charles Mwandawiro, Roy M. Anderson, and Thomas B. Nutman
Graduate Student Name: Alice V. Easton

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Thomas B. Nutman

University Research Advisor: Dr. Roy M. Anderson

Graduate University: Imperial College London

3

Exploring Myosin-5 Elasticity Under Strain

Anna Lopata, Matthew L. Walker, Neil Billington, Attila Nagy, Yasuharu Takagi, Christian Tiede, Darren Tomlinson, Michelle Peckham, Peter J. Knight, and James R. Sellers
Graduate Student Name: Anna Lopata

NIH Institute-Center: NHLBI

NIH Research Advisor: Dr. James R. Sellers

University Research Advisor: Prof. Michelle Peckham

Graduate University: University of Leeds

4

Temporal Stability of the Human Skin Microbiome

Allyson L. Byrd, Julia Oh, Clay Deming, Sean Conlan, Heidi Kon, and Julie Segre
Graduate Student Name: Allyson L. Byrd

NIH Institute-Center: NHGRI

NIH Research Advisor: Dr. Julie Segre

University Research Advisor: Dr. Evan Johnson

Graduate University: Boston University

5

Substrate Mechanics and Protein Kinase A Signaling Effects on Osteogenic Differentiation

Jenna M. Shapiro, Michelle L. Oyen, and Constantine A. Stratakis
Graduate Student Name: Jenna M. Shapiro

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. Constantine A. Stratakis

University Research Advisor: Dr. Michelle L. Oyen

Graduate University: University of Cambridge

6

An Association Between the TAS2R38 Non-taster Haplotype and Menthol Preference among African-American Smokers

Davide Risso, Julia Kozlitina, Tom Kirchner, Gutierrez Joanne, Eduardo Sainz, Stephen Wooding, Robert Niaura, Helen Hobbs, Donata Luiselli, and Dennis Drayna
Graduate Student Name: Davide Risso

NIH Institute-Center: NIDCD

NIH Research Advisor: Dr. Dennis Drayna

University Research Advisor: Prof. Donata Luiselli

Graduate University: University of Bologna

7

Generation of Chimeric P-glycoprotein for Functional and Structural Investigations

Kristen M. Pluchino, Janna K. Moen, Matthew D. Hall, Lothar Esser, Fei Zhou, Eduardo E. Chufan, Suresh V. Amubdkar, Di Xia, and Michael M. Gottesman
Graduate Student Name: Kristen M. Pluchino

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Michael M. Gottesman

University Research Advisor: Dr. Deborah Gill

Graduate University: University of Oxford

8

Cryptic Virulence Among Type X Toxoplasma: A Recombinant Clade Infecting North American Wildlife

Andrea Kennard, Asis Khan, Melissa A. Miller, Natarajan Sundar, Natalie Miller, Erick R. James, Patrick J. Keeling, Mariam Quinones, Kurt Wollenberg, David S. Roos, Patricia A. Conrad, and Michael E. Grigg
Graduate Student Name: Andrea Kennard

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Michael E. Grigg

Graduate University: Johns Hopkins University

9

Structure-based Insights into the Mechanism of a Patient-derived Human Pyruvate Kinase M2 Mutant

Madhvi J. Venkatesh, Soojay Banerjee, Alan A. Merk, Prashant Rao, and Sriram Subramaniam
Graduate Student Name: Madhvi J. Venkatesh

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Sriram Subramaniam

University Research Advisor: Dr. Judith P. Armitage

Graduate University: University of Oxford

10

Poultry and Livestock Density and Risk of Childhood Cancer in Six Midwestern States

Benjamin J. Booth, Mary H. Ward, Mary E. Turyk, Sally Freels, Rachael M. Jones, Rena R. Jones, and Leslie T. Stayner
Graduate Student Name: Benjamin J. Booth

NIH Institute-Center: NCI-DCEG

NIH Research Advisor: Dr. Mary H. Ward

University Research Advisor: Dr. Leslie T. Stayner

Graduate University: University of Illinois at Chicago

POSTERS

11

Characterizing Directional Migration of Cancer Cells in Response to a Stiffness Gradient

Brian J. DuChez and Kenneth M. Yamada

Graduate Student Name: Brian J. DuChez

NIH Institute-Center: NIDCR

NIH Research Advisor: Dr. Kenneth M. Yamada

University Research Advisor: Dr. Daniel Blair

Graduate University: Georgetown University

12

Distinctive Methylation in Khoesan Bushmen May Have Widespread Functional Implications

Brenna A. LaBarre, Vanessa M. Hayes, and Laura L. Elnitski

Graduate Student Name: Brenna A. LaBarre

NIH Institute-Center: NHGRI

NIH Research Advisor: Dr. Laura Elnitski

Graduate University: Boston University

13

Alterations on Pigment Epithelium-derived Factor (PEDF) that Modify Receptor Affinity

Jeanee Bullock, Federica Polato, Valeria Marigo, and S. Patricia Becerra

Graduate Student Name: Jeanee Bullock

NIH Institute-Center: NEI

NIH Research Advisor: Dr. S. Patricia Becerra

Graduate University: Georgetown University

14

Exploring Information Transmission in Networks using Stochastic Simulation and Machine Learning

Kyemyung Park and John Tsang

Graduate Student Name: Kyemyung Park

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. John Tsang

Graduate University: University of Maryland, College Park

15

Etching of High Aspect Ratio Si Gratings of 400 nm Period via Bosch Process

Mona Mirzaeimoghri, Houxun Miao, Lei Chen, Don L. DeVoe, and Han Wen

Graduate Student Name: Mona Mirzaeimoghri

NIH Institute-Center: NHLBI

NIH Research Advisor: Dr. Han Wen

University Research Advisor: Dr. Don DeVoe

Graduate University: University of Maryland, College Park

16

Weight Change and Body Mass Index Trajectories Across the Adult Life Course and Risk of Aggressive and Fatal Prostate Cancers in the PLCO Cancer Screening Trial

Scott P. Kelly, Sean D. Cleary, Naji Younes, Gabriella

Andreotti, Barry I. Graubard, and Michael B. Cook

Graduate Student Name: Scott P. Kelly

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Michael B. Cook

University Research Advisor: Dr. Sean D. Cleary

Graduate University: George Washington University

17

Maturation of a Thermostable Bacterial Virus Observed by Cryo-electron Microscopy using a Direct Electron Detector

Oliver W. Bayfield, Alfred A. Antson, and Alasdair C. Steven

Graduate Student Name: Oliver W. Bayfield

NIH Institute-Center: NIAMS

NIH Research Advisor: Dr. Alasdair C. Steven

University Research Advisor: Prof. Alfred A. Antson

Graduate University: University of York

18

Analysis of Vaccinia Virus Intermediate Transcription Factors and their Orthologs

Carey A. Stuart and Bernard Moss

Graduate Student Name: Carey A. Stuart

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Bernard Moss

University Research Advisor: Dr. Jeffrey DeStefano

Graduate University: University of Maryland, College Park

19

Ratiometric Detection of Protein Kinase Activity with Fluorophore Labeled Polymer Conjugates

Takanobu Nobori, Shujiro Shiosaki, Akihiro

Kishimura, Takeshi Mori, and Yoshiki Katayama

Graduate Student Name: Takanobu Nobori

NIH Institute-Center: NIBIB

NIH Research Advisor: Dr. Xiaoyuan Chen

University Research Advisor: Dr. Yoshiki Katayama

Graduate University: Kyushu University

20

CD4 CAR T Cells Mediate CD8-like Cytotoxic Anti-leukemic Effects Resulting in Leukemic Clearance and are Less Susceptible to Attenuation by Endogenous TCR Activation than CD8 CAR T Cells

Yinmeng Yang, Tasha Lin, Elad Jacoby, Chris Chien, Haiying Qin, Elizabeth G. Gardner, Daniel W. Lee, and Terry J. Fry

Graduate Student Name: Yinmeng Yang

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Terry J. Fry

Graduate University: Georgetown University

21

Glycyrrhizin Protects against Acetaminophen-induced Acute Liver Injury via Alleviating TNF- α -aggravated Apoptosis

Tingting Yan, Hong Wang, Min Zhao, Tomoki Yagai, Yingying Chai, Kristopher W. Kraus, Cen Xie, Xuefang Cheng, Jun Zhang, Yuan Che, Feiyan Li, Yuzheng Wu, Chad Brocker, Frank J Gonzalez, Guangji Wang, and Haiping Hao
Graduate Student Name: Tingting Yan

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Frank J. Gonzalez

University Research Advisor: Dr. Guangji Wang

Graduate University: China Pharmaceutical University

22

Strand-specific RNA Sequencing of *Plasmodium vivax* Clinical Isolates

Jessica B. Hostetler, Lia Chappell, Thomas D. Otto, Ulrike Böhme, Chanaki Amaratunga, Matthew Berriman, Rick Fairhurst, and Julian C. Rayner
Graduate Student Name: Jessica B. Hostetler

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Rick Fairhurst

University Research Advisor: Dr. Julian C. Rayner

Graduate University: University of Cambridge

23

Characterization of Induced Pluripotent Stem Cell Lines from Patients with Congenital Muscular Dystrophy

Alec R. Nickolls, Kristen Zukosky, and Carsten G. Bönnemann

Graduate Student Name: Alec R. Nickolls

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Carsten G. Bönnemann

Graduate University: Brown University

24

Topology of Endoplasmic Reticulum-associated Cellular and Viral Proteins Determined with Split-GFP

Seong-In Hyun, Liliana Maruri-Avidal, and Bernard Moss

Graduate Student Name: Seong-In Hyun

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Bernard Moss

Graduate University: University of Maryland, College Park

25

Disruptive Effects of Transcranial Magnetic Stimulation on Motor Sequence Chunking

Diana Muessgens, Nivethida Thirugnanasambandam, Traian Popa, and Mark Hallett

Graduate Student Name: Diana Muessgens

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Mark Hallett

Graduate University: Karolinska Institutet

26

TLR1/2 Signaling Drives the Differentiation of Human Monocytes into M2-like Macrophages

Defna Bayik, Debra Tross, and Dennis M. Klinman

Graduate Student Name: Defne Bayik

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Dennis M. Klinman

Graduate University: Bilkent University

27

Development of the First Visual Synapse

D. Thad Whitaker, Passley Hargrove, Soo-Young Kim, Amal Alsufyani, Jung-Woong Kim, Hyun Jin Yang, Hannah Fann, Kristen Mollura, and Anand Swaroop
Graduate Student Name: D. Thad Whitaker

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Anand Swaroop

University Research Advisor: Dr. Michael Smotherman

Graduate University: Texas A&M University

28

The 3' End Processed RybD Small RNA Modulates the Acetate Metabolism in *E. coli* Depending on the Krebs Cycle

François X. De Mets, Laurence Van Melderen, and Susan Gottesman

Graduate Student Name: François X. De Mets

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Susan Gottesman

University Research Advisor: Dr. Laurence Van Melderen

Graduate University: Université Libre de Bruxelles

29

Subcortical Brain Differences in Alcohol Dependent Individuals with and without Comorbid Polysubstance Use Disorder

Erica Nicole Grodin, Vijay Ramchandani, and Reza Momenan

Graduate Student Name: Erica Nicole Grodin

NIH Institute-Center: NIAAA

NIH Research Advisor: Dr. Vijay Ramchandani

Graduate University: Brown University

30

Protection of Rhesus Macaques against SIVsmE660 Swarm Challenge by Antibodies Delivered via Adeno-associated Virus

Hugh Welles, Rosemarie Mason, Alejandro Balazs, Cheng Cheng, Lingshu Wang, Bimal Chakrabarti, Jean-Paul Todd, Jeffery Lifson, Brandon Keele, John Mascola, and Mario Roederer

Graduate Student Name: Hugh Welles

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Mario Roederer

University Research Advisor: Dr. Douglas Nixon

Graduate University: George Washington University

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31

A 3D Searchable Database of Transgenic Zebrafish Gal4 and Cre Lines

Gregory D. Marquart, Kathryn M. Tabor, Mary Brown, Jennifer L. Strykowski, Gaurav K. Varshney, Matthew C. LaFave, Thomas Mueller, Shawn M. Burgess, Shin-ichi Higashijima, and Harold A. Burgess
Graduate Student Name: Gregory D. Marquart
NIH Institute-Center: NICHD
NIH Research Advisor: Dr. Harold A. Burgess
Graduate University: University of Maryland, College Park

32

Regulation of NF- κ B Target Gene Expression in Activated B Lymphocytes

Jaimy Joy, Mingming Zhao, William H. Wood III, Yongqing Zhang, Kevin Becker, Haiping Hao, and Ranjan Sen
Graduate Student Name: Jaimy Joy
NIH Institute-Center: NIA
NIH Research Advisor and University Research Advisor: Dr. Ranjan Sen
Graduate University: Johns Hopkins University

33

Characterization of Tissue Damage by Postmortem MRI in Marmoset EAE Spinal Cords

Jennifer A. Lefevre, Joseph R. Guy, Nicholas Luciano, Emily Leibovitch, Mathieu Santin, Afonso Silva, Steve Jacobson, Stéphane Lehericy, Daniel S. Reich, and Pascal Sati
Graduate Student Name: Jennifer A. Lefevre
NIH Institute-Center: NINDS
NIH Research Advisor: Dr. Daniel S. Reich
University Research Advisor: Dr. Mathieu D. Santin
Graduate University: University Pierre et Marie Curie

34

The HIV Env Signal Peptide Impacts the Glycosylation and Antigenicity of gp120

Jason Yolitz, Catherine Schwing, Claudia Cicala, Danlan Wei, Fatima Nawaz, Katija Jelacic, Donald Van Ryk, Anthony S. Fauci, and James Arthos
Graduate Student Name: Jason Yolitz
NIH Institute-Center: NIAID
NIH Research Advisor: Dr. James Arthos
Graduate University: Johns Hopkins University

35

Dopamine Synthesis and Receptor Profile are Associated with Body Mass Index in Humans

Angela M. Ianni, Daniel P. Eisenberg, Catherine E. Hegarty, Joseph C. Masdeu, Michael D. Gregory, Philip D. Kohn, and Karen F. Berman
Graduate Student Name: Angela M. Ianni
NIH Institute-Center: NIMH
NIH Research Advisor: Dr. Karen F. Berman
University Research Advisor: Dr. Tim Behrens
Graduate University: University of Oxford

36

A Novel FACS Technique to Measure Autophagy in *Plasmodium falciparum*

Kimberly F. Faldetta, Katja Simon, David Roberts, and Rick Fairhurst
Graduate Student Name: Kimberly F. Faldetta
NIH Institute-Center: NIAID
NIH Research Advisor: Dr. Rick Fairhurst
University Research Advisor: Dr. Katja Simon and Dr. David Roberts
Graduate University: University of Oxford

37

Does Location Matter? Neural Correlates of Location-Specific Fear Learning in Humans

Benjamin Suarez-Jimenez, James A. Bisby, Aidan J. Horner, John A. King, Daniel S. Pine, and Neil Burgess
Graduate Student Name: Benjamin Suarez-Jimenez
NIH Institute-Center: NIMH
NIH Research Advisor: Dr. Christian Grillon
University Research Advisor: Dr. Neil Burgess
Graduate University: University College London

38

Targeting Rhabdomyosarcoma using Chimeric Antigen Receptor (CAR) T Cell Therapy

Nityashree Shivaprasad, Rimas Orentas, and Javed Khan
Graduate Student Name: Nityashree Shivaprasad
NIH Institute-Center: NCI
NIH Research Advisor: Dr. Javed Khan and Dr. Rimas Orentas
University Research Advisor: Dr. Anton Wellstein
Graduate University: Georgetown University

39

FRRS1L Regulates AMPA Receptors Trafficking and Gating by Interacting with Cornichon2

Huiqing Wang, Xia Mao, and Wei Lu
Graduate Student Name: Huiqing Wang
NIH Institute-Center: NINDS
NIH Research Advisor: Dr. Wei Lu
University Research Advisor: Dr. Shizhong Zhang
Graduate University: Southern Medical University, China

40

IL-20 Receptor Expression and Signaling in Human Neutrophils during Challenge with *Staphylococcus aureus*

Portia Gough, Ian Myles, and Sandip Datta
Graduate Student Name: Portia Gough
NIH Institute-Center: NIAID
NIH Research Advisor: Dr. Sandip Datta
University Research Advisor: Dr. Olaf Schneewind
Graduate University: University of Chicago

41

Consistent Spatiotemporal Dynamics of Spectral Power Characterize Successful Memory Retrieval

Robert B. Yaffe, Jennifer Arai, Sara K. Inati, and Kareem A. Zaghloul

Graduate Student Name: Robert B. Yaffe

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Kareem A. Zaghloul

Graduate University: Johns Hopkins University

42

Characterization of a Large, Proteolytically Processed Membrane Glycoprotein Conserved in most Chordopoxviruses

Sara E. Reynolds, Patricia Earl, and Bernard Moss

Graduate Student Name: Sara E. Reynolds

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Bernard Moss

University Research Advisor: Dr. James Culver

Graduate University: University of Maryland, College Park

43

Control of Respiratory Circuits by Brainstem Astrocytes

Shahriar Sheikhbahaei, Egor Turovsky, Sergey Kasparov, Alexander V. Gourine, and Jeffrey C. Smith

Graduate Student Name: Shahriar Sheikhbahaei

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Jeffrey C. Smith

University Research Advisor: Dr. Alexander V. Gourine

Graduate University: University College London

44

Role of Resident vs. Peripherally-derived Myeloid Cells in the Immune Response to Mild Traumatic Brain Injury

Matthew V. Russo and Dorian B. McGavern

Graduate Student Name: Matthew V. Russo

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Dorian B. McGavern

University Research Advisor: Dr. Reiji Kuruvilla

Graduate University: Johns Hopkins University

45

The Validity of a Clinician-administered Fatigue Measure: Preliminary Findings Across Patient Populations

Valeria Martinez-Kaigi, David A. Luckenbaugh, Leorey N. Saligan, Codrin Lungu, Rodrigo Machado-Vieira, and Carlos A. Zarate Jr.

Graduate Student Name: Valeria Martinez-Kaigi

NIH Institute-Center: NIMH

NIH Research Advisor: Dr. Carlos A. Zarate Jr.

Graduate University: University of North Texas

46

Inducible T Cell Kinase Regulates the Late Stages of CD8+ T Lymphocyte Effector Function

Senta M. Kapnick and Pam L. Schwartzberg

Graduate Student Name: Senta M. Kapnick

NIH Institute-Center: NHGRI

NIH Research Advisor: Dr. Pam L. Schwartzberg

Graduate University: Johns Hopkins University

47

Hypothalamic AgRP Neurons Robustly Alter Non-feeding Behaviors

C. Joseph Burnett, Emily S. Webber, and Michael J. Krashes

Graduate Student Name: C. Joseph Burnett

NIH Institute-Center: NIDDK

NIH Research Advisor: Dr. Michael J. Krashes

Graduate University: Brown University

48

Contribution of Th1 and Th17 Effector Cytokines to the Pathogenesis of Spontaneous Ocular Autoimmunity

So Jin Bing, Reiko Horai, Phyllis Silver, Yingyos Jittayasothorn, Chi-Chao Chan, and Rachel Caspi

Graduate Student Name: So Jin Bing

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Rachel Caspi

University Research Advisor: Dr. Youngheun Jee

Graduate University: Jeju National University

49

Investigating the Role of the Axon Initial Segment in Neurodegeneration

Josh Spurrier, Arvind Shukla, Veta Trunova-Smith, and Ed Giniger

Graduate Student Name: Josh Spurrier

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Ed Giniger

Graduate University: Johns Hopkins University

50

TMP778 Inhibits Pathogenic Functions of Th17 Cells

In vitro and vivo

Cancan Lyu, Wambui Wando, Samuel Hinshaw, and Igal Gery

Graduate Student Name: Cancan Lyu

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Igal Gery

University Research Advisor: Dr. Lin Lu

Graduate University: Sun Yat-sen University

51

The Functional and Synaptic Connectivity of Periglomerular Interneurons in the Mouse Olfactory Bulb

Kara A. Fulton and Kevin L. Briggman

Graduate Student Name: Kara A. Fulton

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Kevin L. Briggman

Graduate University: Brown University

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52

IL-20 Promotes T Cell-mediated Hepatitis in Mice by Inhibiting the Production of Hepatoprotective Cytokine IL-6

Yong He, De-chun Feng, Ming-jiang Xu,

Yanhang Gao, and Bin Gao

Graduate Student Name: Yong He

NIH Institute-Center: NIAAA

NIH Research Advisor: Dr. Bin Gao

Graduate University: Anhui Medical University

53

ABC Transporter Expression in Drug Resistant Epilepsy

Lora D. Weidner, William H. Theodore, Matthew

D. Hall, Robert B. Innis, and Jan Mulder

Graduate Student Name: Lora D. Weidner

NIH Institute-Center: NIMH

NIH Research Advisor: Dr. Robert B. Innis

University Research Advisor: Dr. Jan Mulder

Graduate University: Karolinska Institutet

54

Immunolabeling of Live Cone Photoreceptors in the Ground Squirrel for Single Cell RNA Sequencing

Vincent P. Kunze and Wei Li

Graduate Student Name: Vincent P. Kunze

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Wei Li

University Research Advisor: Dr. Karl-W. Koch

Graduate University: Carl von Ossietzky Universität Oldenburg

55

Loss of Rabgef1 causes Photoreceptor Degeneration due to Disruption of Rab5-dependant Endocytosis

Passley Hargrove, Hyun-Jin Yang, Jung- Woong

Kim, Matthew Brooks, and Anand Swaroop

Graduate Student Name: Passley Hargrove

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Anand Swaroop

University Research Advisor: Dr. Sally Moody

Graduate University: George Washington University

56

Role of Corticoamygdala Circuitry in Vicariously Learned Fear: From Mouse to Man

Shana E. Silverstein and Andrew Holmes

Graduate Student Name: Shana E. Silverstein

NIH Institute-Center: NIAAA

NIH Research Advisor: Dr. Andrew Holmes

University Research Advisor: Dr. Essi Viding

Graduate University: University College London

57

Ionic Mechanisms that Underlie the Pause in Midbrain Dopamine Subpopulations

Rahilla Tarfa and Zayd Khaliq

Graduate Student Name: Rahilla Tarfa

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Zayd Khaliq

Graduate University: Brown University

58

Rnaseh2c is a Candidate Metastasis Susceptibility Gene in Breast Cancer

Sarah Deasy and Kent Hunter

Graduate Student Name: Sarah Deasy

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Kent Hunter

University Research Advisor: Dr. Norman Lee

Graduate University: George Washington University

59

Characterizing Fos-expressing Neuronal Ensembles in the Nucleus Accumbens after Amphetamine Sensitization in Rats

Rebecca V. Fallon, F. Javier Rubio, and Bruce T. Hope

Graduate Student Name: Rebecca V. Fallon

NIH Institute-Center: NIDA

NIH Research Advisor: Dr. Bruce T. Hope

Graduate University: Johns Hopkins University

60

Biophysical Mechanisms of Intrinsic Bursting and Network Synchronization of Excitatory Pre-Bötzing Neurons

Ryan S. Phillips and Jeffery Smith

Graduate Student Name: Ryan S. Phillips

NIH Institute-Center: NINDS

NIH Research Advisor and University Research Advisor:

Dr. Jeffery Smith

Graduate University: University of New Hampshire

61

The Supramammillo-septal Glutamatergic Pathway is a Novel Reward Circuit

Andrew J. Kesner, Rick Shin, and Satoshi Ikemoto

Graduate Student Name: Andrew J. Kesner

NIH Institute-Center: NIDA

NIH Research Advisor: Dr. Satoshi Ikemoto

Graduate University: Johns Hopkins University

62

Integrating Genome-wide Screens, Bioinformatic Analysis, and Single Cell Studies for the Identification and Characterization of Novel Regulatory Pathways in the TLR4 Response to LPS

Samuel Katz, Jing Sun, Ning Li, Bhaskar Dutta,

Clare Bryant, and Iain D. C. Fraser

Graduate Student Name: Samuel Katz

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Iain D. C. Fraser

University Research Advisor: Dr. Clare Bryant

Graduate University: University of Cambridge

63

The HEART-BREAK Study: Using the γ -H2AX Assay to Evaluate Diagnostic Ionizing Radiation Exposure from Cardiac Imaging

Allison S. Burrell, Michael K. Cheezum, Jody E. Bindeman, Anthony Kaviratne, Panfilo Delacruz, Todd C. Villines, William M. Bonner, and Christophe E. Redon
Graduate Student Name: Allison S. Burrell
NIH Institute-Center: NCI
NIH Research Advisor: Dr. William M. Bonner
University Research Advisor: Dr. Norman Lee
Graduate University: George Washington University

64

Whole Brain Calcium Imaging of a Larval Zebrafish During Prey Capture

Matthew Schiel, Christopher A. Harris, and Kevin L. Briggman
Graduate Student Name: Matthew Schiel
NIH Institute-Center: NINDS
NIH Research Advisor: Dr. Kevin L. Briggman
Graduate University: Brown University

65

Cell Line-derived Extracellular Vesicles Protect against Aminoglycoside-induced Hair Cell Death *In vitro*

Andrew M. Breglio, Lindsey May, Samir El Andaloussi, Matthew J. A. Wood, and Lisa Cunningham
Graduate Student Name: Andrew M. Breglio
NIH Institute-Center: NIDCD
NIH Research Advisor: Dr. Lisa Cunningham
University Research Advisor: Dr. Matthew J. A. Wood
Graduate University: University of Oxford

66

The Phenotype and Function of Marrow-Infiltrating Lymphocytes in Healthy Subjects and AML Patients

Meghali Goswami, Jingrong Tang, and Christopher S. Hourigan
Graduate Student Name: Meghali Goswami
NIH Institute-Center: NHLBI
NIH Research Advisor: Dr. Christopher S. Hourigan
Graduate University: George Washington University

67

Fishing for Factors in Self-organization of Biological Systems: Heparan Sulfate Proteoglycans Regulate Fgf Signaling in the Zebrafish Lateral Line

Caitlin M. Fox and Ajay B. Chitnis
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NIH Institute-Center: NICHD
NIH Research Advisor: Dr. Ajay B. Chitnis
Graduate University: Johns Hopkins University

68

Henchmen, Handmaidens, or Thieves? Tumor Viruses are Absconding with Your DNA

Michael J. Tisza and Christopher B. Buck
Graduate Student Name: Michael J. Tisza
NIH Institute-Center: NCI
NIH Research Advisor: Dr. Christopher B. Buck
Graduate University: Johns Hopkins University

69

Molecular Characterization of FERM and PDZ Domain Containing 1 (Frmpd1), a Candidate Gene Necessary for Rod Photoreceptor Maturation

Christie K. Campla, Jung-Woong Kim, Hyun-Jin Yang, Jerome Roger, Stephanie Halford, Sumathi Sekaran, and Anand Swaroop
Graduate Student Name: Christie K. Campla
NIH Institute-Center: NEI
NIH Research Advisor: Dr. Anand Swaroop
University Research Advisor: Dr. Stephanie Halford and Dr. Sumathi Sekaran
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Deficits of Self-initiated and Internal Strategies in Language Generation Tasks in Parkinson's Disease

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Common Mechanism of Teratogenicity of Anti-angiogenic Drugs Identified in the Developing Zebrafish and Chicken Embryo Models

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Organochlorine Insecticide Exposures and Cancer Risk among the Agricultural Health Study (AHS) Farm Spouses

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Dissecting the Gene Regulatory Function of MYC with Single-molecule Analysis

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The Brain-gut Axis in Patients with IBS and Comorbid Headache: Associations between Intestinal Barrier Dysfunction, Inflammation and Markers of Stress

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New Role for Translation Initiation Factor eIF2 β in Promoting Ribosomal Scanning and Accurate Start Codon Selection *In vivo*

Laura Marler, Anil Thakur, Jose L. Ll  cer, Tanweer Hussain, Colin Echeverr  a Aitkens, Jon R. Lorsch, V. Ramakrishnan, and Alan G. Hinnebusch

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Integrated Analysis of Chromatin Remodeling in Motor Neuron Development

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Human MC3R C17A+G241A Knock-in Mice Have a Unique Inflammatory Profile

Dezmond C. Taylor-Douglas, Joo Yun Jun, Bonggi Lee, Sunny Jung, Robin Roberson, Daniel Gehle, Nicket Dedhia, Angela Davis, Andrew Demidowich, Weiping Chen, Chithra Keembiyehetty, and Jack A. Yanovski

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What Lies Beneath: Exposing Hidden Single-strand Breaks through Transcriptional Pauses

Allison Dennis and David Clark

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Somatic Expansion of Premutation Alleles and the Role of the Mismatch Repair and Base Excision Repair Proteins on Repeat Expansion in a Mouse Model of the Fragile X-related Disorders (FXDs)

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Gene Editing in Mice RPGR ORF15 Genome using CRISPR Cas9

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Identified Genes and Pathways Responsible for Improved Recombinant Protein Expression from HEK 293 Cells by miRNA 22 and miRNA 429

Sarah Inwood, Su Xiao, Michael

Betenbaugh, and Joseph Shiloach

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Functionality of LN-Resident SIV-Specific CD8+ T Cells

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Assessing Behavior and Anxiety in the Dhcr7 Δ 3-5/T93M Mouse Model of Smith-Lemli-Opitz Syndrome

Joanna Cross, Margaret Keil, Frances Platt, and Forbes Porter

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Elucidating the Role of pLppr Proteins in CNS Plasticity

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Investigations on the Assembly and the Poly-SUMOylation of the Kinetochore

Joseph Bareille and Mary Dasso

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Dopamine Receptor Activation Potently Modulates GABAergic Collateral Transmission in the Nucleus Accumbens

Dennis A. Burke and Veronica A. Alvarez

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Loss of LRRK2 Signaling leads to Cytoskeletal Deregulation and Lysosomal Disruption

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mRNA Transfection of NK Cells with GainofFunction CXCR4 As a Novel Method to Enhance the Homing of Adoptively Transferred NK Cells to the Bone Marrow for the Treatment of Hematological Malignancies

Emily R. Levy, Robert N. Reger, Mattias Carlsten, and Richard W. Childs

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Characterization of EIF2S3 and AMMECR1 Mutations Causing New Human Disease Syndromes Related to Protein Synthesis

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LRRK2 at the Interface of Endosomes, Autophagosomes and Lysosomes

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Probing the Role of ClC-7 in Lysosomal pH Maintenance

Mary R. Weston and Joseph A. Mindell

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Development of a Field-based Point-of-care Assay to Detect Antimalarial Drugs from Unprocessed Fingertick Blood Samples

Erin Coonahan, Maarten De Vos, Joel Tarning, and Rick Fairhurst

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Regional Heterogeneity in the Macrogial Network

Wendy Xin and Antonello Bonci

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Deciphering the Genetic and Functional Mechanisms of Immune Memory against Malaria in *Anopheles gambiae* Hemocytes using Single-cell Transcriptomics

Gianmarco Raddi, Oliver Billker, and Carolina Barillas-Mury

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Shining a Light on the Role of UV in the Initiation and Progression of Melanocytic Lesions

Helen T. Michael, Chi-Ping Day, Aleksandra

Michalowski, and Glenn Merlino

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Understanding the Role of RUNX1-TLE1 Interaction in the Pathogenesis of Familial Platelets Disorder/ Acute Myeloid Leukemia

Halal Alkadi, Yongxing Gao, Anfal Alsadhan, Stephen

Wincovitch, April Sorrell, Linzhao Cheng, and Paul P. Liu

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Axonal Autophagosomes Recruit Dynein for Retrograde Transport through Fusion with Late Endosomes

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Targeted Genome Editing for Treatment of a Mouse Model of Methylmalonic Acidemia (MMA)

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and Charles P. Venditti

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Study of Molecular Cloning, Characterization and Purification of *C. elegans* Phosphodiesterase3 (CEPDE3)

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The Influence of Alcohol Use on Psychological Processes During Smoking Cessation: Laboratory and Ecological Momentary Assessment (EMA) Investigations

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Generation of Rhesus Monkey iPSC-derived Endothelial Cells

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The MIJO (Mammary Induced Joint Occupancy) Code

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